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09/842,021	04/26/2001	Masahiro Yamada	SON-2084	6932

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EXAMINER

SCHWARTZ, JORDAN MARC

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/842,021

Applicant(s)

YAMADA ET AL.

Examiner

Jordan M. Schwartz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-114 is/are pending in the application.
- 4a) Of the above claim(s) 19-114 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 14, 15 and 18 is/are rejected.
- 7) ☒ Claim(s) 11-13, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 April 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Election/Restriction

Applicant's election with traverse of Group Ia, claims 1-18 in Paper No. 8 is acknowledged. The traversal is on the ground(s) of whether claim 1 is generic to claims 52 and 112. This is not found persuasive because the examiner believes that it is not generic to these claims. Specifically, claim 1 requires as a limitation that the index of refraction of the second optical material is different from that of the first optical material, which is not a limitation within either of claims 52 and 112. Therefore, claim 1 is not generic to either of claims 52 or 112.

The requirement is still deemed proper and is therefore made FINAL.

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

Claim 4 is objected to because of the following informalities:

1. In reference to claim 4, line 3, "with reset" should be corrected "with respect";

2. In reference to claim 4, lines 5-6, "or an substantially arc" should be corrected to "or substantially an arc".

Appropriate correction is required.

Claim 10 is objected to for the following reasons. Since the intended meaning could be determined from the specification and the Figures, 112 rejections were not made but instead these lack of clarity issues were raised in claim objections:

In reference to claim 10, lines 13-14, applicant is claiming "a fourth flat surface substantially parallel with respect to the fourth flat surface" which creates the lack of clarity. From what is set forth in the specification and Figures, the assumed meaning is "a fourth flat surface substantially parallel with respect to the third flat surface".

Claim Rejections - 35 USC § 112

Claims 7-8, 14-15 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With reference to claims 7-8 and 14-15, applicant is claiming "titanium oxide, tantalum oxide,...or silicon nitride" and applicant's intended meaning is not clear rendering these claims vague and indefinite. Specifically, it is not clear if applicant is claiming that the material comprises all of the claimed substances i.e. it comprises "titanium oxide, and tantalum oxide, and gallium phosphate... or just silicon nitride" or that the material comprises "titanium oxide, or tantalum oxide, or gallium phosphate, or gallium nitride or a compound of titanium, niobium and oxygen, or a compound of

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titanium, tantalum, and oxygen, or silicon nitride” and the later is the assumed meaning for purposes of examination.

With reference to claim 18, applicant is claiming the lens shaped by a substantially rotationally symmetric curved surface and the flat surface...” which renders the claim vague and indefinite. Specifically, “the flat surface” lacks an antecedent basis and it is not known as to what flat surface applicant is referring to. Furthermore, it is not clear how the lens is being shaped by a flat surface or if applicant is attempting to claim that the lens has a flat surface and the lack of clarity renders the claim vague and indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 9 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Rottmann.

Rottmann reads on these claims by disclosing the limitations therein including the following: an optical device (abstract) comprising a first optical portion made of a first

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optical material (Figures 2 and 9, "member 6", column 4, line 64, column 5, lines 3-10); the first optical portion having a concavity (Figures 2 and 9, "member 6", and column 5, lines 39-45); a second optical portion inserted into the concavity (column 5, lines 39-45 re the refractive fluid within the concavity); the second optical material of a different refractive index than the first refractive material (column 6, lines 11-15); the first optical portion having the first and second flat surfaces as claimed (Figures 2, and 9, "member 6"); a layer of optical material for sealing the concavity (Figures 2 and 9, "cover lens member "7" and column 5, lines 39-45); the concavity having a substantially rotational symmetric shape and is an arc (Figures 2 and 9). The refractive index of the first optical material will inherently be within the range of claim 5, this being reasonably based upon the first optical material being disclosed as glass (column 5, lines 3-6). Rottmann further discloses the index of refraction of the second optical material within the claimed range (column 6, the table of liquids). Rottmann further discloses the embodiment of claim 9 i.e. two such optical devices bonded together so that the symmetry axes of the concavities meet the optical axis (Figure 15 embodiment); and the optical device further comprising a lens bonded as claimed (Figure 15 embodiment).

Claims 1 and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Torii et al.

Torii et al reads on these claims by disclosing the limitations therein including the following: an optical device (abstract re "an optical mold") comprising a first optical portion made of a first optical material (Figure 1, the mold portion "2", column 6, lines 29-41); the first optical portion having a concavity (Figure 1, the concavity within the

mold portion "2"); a second optical portion inserted into the concavity (Figure 2, column 3, line 31 re the raw glass being inserted within the concavity); the second optical material of a different refractive index than the first refractive material (column 6, lines 29-41 and column 3, line 31 with the "first optical portion" as silicon nitride and the "second optical portion" made of glass); the first optical portion having a refractive index within the claimed range and being made of silicon nitride (column 6, lines 29-41). The refractive index of the second optical material will inherently be within the range of claim 6, this being reasonably based upon this material being disclosed as glass (column 3, line 31).

Claims 1-2, 4-6, 9-10 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Shimizu et al.

Shimizu et al reads on these claims by disclosing the limitations therein including the following: an optical device (abstract) comprising a first optical portion made of a first optical material (Figure 1, "29", paragraph 0069); the first optical portion having a concavity (Figure 1, "29"); a second optical portion inserted into the concavity (Figure 1, re material "4" inserted in the concavity); the second optical material of a different refractive index than the first refractive material (paragraphs "0041" and "0069"); the first optical portion having the first and second flat surfaces as claimed (Figures 1); the second optical material as liquid-like (paragraph "0041"); a layer of optical material for sealing the concavity (Figure 1, "89"); the concavity having a substantially rotational symmetric shape and is an arc (Figure 1). The refractive index of the first and second optical materials will inherently be within the ranges of claims 5-6, this being reasonably

based upon the types of materials disclosed. Shimizu et al further the embodiment of claim 9 i.e. two such optical devices bonded together so that the symmetry axes of the concavities meet the optical axis (Figure 4 embodiment); and the optical device further comprising a lens bonded as claimed (Figure 4 embodiment).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rottmann.

Rottmann discloses as is set forth above but does not specifically disclose the liquid as an optical oil. However, Rottmann discloses the liquid being used to form a lens within a concavity (column 5, lines 39-45). The examiner takes Judicial Notice that it is well known in the art of optical devices for liquid lenses to be formed from optical oils to provide the required refractive properties. Therefore, it would have been obvious to person of ordinary skill in the art at the time the invention was made to have the optical liquid of Rottmann as an optical oil since Rottmann discloses the liquid being used to form a lens within a concavity and since it is well known in the art of optical devices for liquid lenses to be formed from optical oils to provide the required refractive properties.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Torii et al in view of Bruck et al.

Torii et al discloses as is set forth above including the press molding of optical materials (column 6, lines 19-29). Bruck et al teaches that optical materials that are press molded (column 2, lines 1-5) can be optical materials of silicon nitride (column 2, line 16) for the purpose of forming optical materials for waveguides (column 3, line 61). Therefore, it would have been obvious to a person of ordinary skill at the time the invention was made to have the optical material formed by the mold pressing of Torii et al as a material of silicon nitride since Bruck et al teaches that optical materials that are press molded can be optical materials of silicon nitride for the purpose of forming optical materials for waveguides.

Examiner's Comments

For applicant's information, due to the extreme broadness of claim 1 and a number of its dependent claims, numerous references could have been used to reject these claims. For example, any lens mold in which the mold material differs from the lens material within would read on at least claim 1. Furthermore, any microscope imbedded objective lens with the imbedded lens having a differing refractive index than the lens in which it is imbedded (which is the majority of these lenses) would read on at least claim 1. Furthermore, any liquid lens with the liquid of a differing refractive index than the material in which it is imbedded would also read on at least claim 1.

Allowable Subject Matter

Claims 11-13 and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 14-15 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: with respect to the allowable subject matter, none of the prior art either alone or in combination disclose or teach of the claimed limitations to warrant a rejection under 35 USC 102 or 103. Specifically, with respect to claims 11-16, none of the prior art either alone or in combination disclose or teach of the claimed optical system having the specific optical structure of claims 9 and 10 and specifically further with the first concavity larger than the second concavity the second and third flat surfaces as bonded, the second optical material with a refractive index greater than the first optical material, the fourth optical material with a refractive index greater than the third optical material and forming a solid immersion lens. Specifically, with respect to claim 17, none of the prior art either alone or in combination disclose or teach of the claimed optical system having the specific optical structure of claim 9 and specifically further with the system comprising a slider of an optical head attached to a swing arm.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jordan M. Schwartz whose telephone number is (703) 308-1286. The examiner can normally be reached on Monday to Friday (8:00-5:30), alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached at (703) 308-4883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



Jordan M. Schwartz
Primary Examiner
Art Unit 2873
April 25, 2003